WHAT IS CLAIMED IS:

1.   Transmitters in a network where the transmitters have an individual specific address and are connected through different transmission paths so that a packet with information about a source address is transmitted, each transmitter comprising:

a plurality of transmission path ports respectively connected to said different transmission paths for receiving said packet; and

a relay section for relaying the received packet to a relay transmission path of said transmission paths by which said received packet reaches its destination;

wherein said relay section comprises:

a table for storing information about the relay of said received packet to one of said transmission path ports connected to said relay transmission path, correlated with a port identifier of each said transmission path port and the source address of the transmitter that transmitted said packet; and

a router for extracting the port identifier of the transmission path port that received said packet and said source address contained in said received packet, and routing said received packet to the transmission path port connected to said relay transmission path by referring to said table for said extracted port identifier and source address.

1   2.   The transmitters as set forth in claim 1, wherein

2   said router comprises:

3   a receiving port extracting part for extracting

4   the receiving port identifier of the transmission path

5   port that received said packet;

6   a source address extracting part for extracting

7   the source address contained in said received packet; and

8   a routing part for performing said routing by

9   referring to said table in response to said receiving port

10   identifier extracted by said receiving port extracting

11   part and said source address extracted by said source

12   address extracting part.

1   3.   The transmitters as set forth in claim 1, wherein,

2   as said information about the relay of said received packet

3   correlated with said receiving port identifier and said

4   source address, said table stores both information that

5   said received packet is not relayed if it circulates within

6   said network, and information that said received packet

7   is relayed if it does not circulate within said network.

1   4.   The transmitters as set forth in claim 3, wherein

2   said network has a mesh path or ring path through which

3   said received packet can circulate.

1   5.   The transmitters as set forth in claim 1, wherein

2   in the case where a path to a destination transmitter is

3   divided into a plurality of paths and has a redundant

4   structure,

5   when said received packet is routed by said

6   router, transmission path ports to relay said received

7   packet are assigned in said table so that many of them

8   are not relayed only to a specific path forming said

9   redundant structure.

1   6.   The transmitters as set forth in claim 2, wherein

2   said routing part comprises:

3   a judging part for judging the relay of said

4   received packet by referring to said table, based on said

5   receiving port identifier extracted by said receiving port

6   extracting part and said source address extracted by said

7   source address extracting part; and

8   an assigning part for assigning said received

9   packet to a transmission path port when it is judged by

10 said judging part that said received packet is relayed.

1   7.   A packet transmission method for a network where

2   transmitters with an individual address are connected

3   through a transmission path so that a packet with

4   information about the address of a source transmitter is

5   transmitted from the source transmitter to a destination

6   transmitter,

7   in a relay transmitter between said source

8   transmitter and said destination transmitter, said method

9   comprising

10   a port extracting step of extracting the

11   receiving port identifier in a packet received through

12   said transmission path,

13   an address extracting step of extracting a

14   source address contained in said received packet, and

15   a routing step of routing said received packet,

16   based on said extracted receiving port identifier and said

17   extracted source address.

1   8.   The method as set forth in claim 7, wherein said

2   routing step comprises:

3   a judgement step of judging the relay of said

4   received packet, based on said extracted port identifier

5   and said extracted source address; and

6   an assignment step in which, when it is judged

7   in said judgement step that said received packet is relayed,

8   said received packet is assigned to a transmission port,

9   and when it is judged in said judgement step that said

10   received packet is not relayed, information that said

11   received packet is not relayed is issued and said received

12   packet is not assigned to a correlated transmitting port.